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**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Docket Number (Optional)

081468-0307559

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Application Number

10/756,841

Filed

January 14, 2004

First Named Inventor

Paulus Antonius Andreas Teunissen, et al.

Art Unit

2851

Examiner

Kim, Peter B.

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.☐ assignee of record of the entire interest.  
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.  
(Form PTO/SB/96)☒ attorney or agent of record.  
Registration number 35,056☐ attorney or agent acting under 37 CFR 1.34.  
Registration number if acting under 37 CFR 1.34 \_\_\_\_\_

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July 17, 2006

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below\*.

☒ \*Total of 1 forms are submitted.

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Attorney Docket: 081468-0307559

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of:  
TEUNISSEN ET AL.

Confirmation Number: 1509

Application No.: 10/756,841

Group Art Unit: 2851

Filed: January 14, 2004

Examiner: Kim, Peter B.

Title: LITHOGRAPHIC APPARATUS, LEVEL SENSOR, METHOD OF INSPECTION,  
DEVICE MANUFACTURING METHOD, AND DEVICE MANUFACTURED THEREBY

ATTACHMENT IN SUPPORT OF PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the Final Office Action dated February 15, 2006 and the Advisory Action dated June 12, 2006, Appellants hereby request that a panel of examiners formally review the legal and factual basis of the rejections in the above-identified application prior to the filing of an appeal brief. This request is being concurrently filed with a Notice of Appeal. The review is requested for the reasons provided below. A total of 5 pages is provided. Appellants assert that the outstanding rejections are clearly improper based both upon errors in facts and the omission of essential elements required to establish a *prima facie* case of obviousness (i.e., the prior art references fail to disclose, teach or suggest all the recited claim features).

Appellants appeal the rejection of claims 1-6, 9-14, and 44-53 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pub. No. 2004/0000627 to Schuster ("Schuster") in view of U.S. Pub. No. 2003/0090804 to Kotchick ("Kotchick"), and also the rejection of claims 7 and 8 under 35 U.S.C. § 103(a) as being unpatentable over Schuster in view of Kotchick as applied to Claim 1 above, and further in view of U.S. Pub. No. 2002/0000520 to Kawaguchi ("Kawaguchi").

**Claims 1-14 and 53**

In the Final Office Action rejecting claims 1-14 and 53, the Examiner conceded that the combination of Schuster and Kotchick does not teach all the elements recited in claim 1. Schuster, according to the Examiner, fails to recite a level sensor configured with first and

second reflectors, wherein *a magnitude of an apparent surface depression of the wafer due to translation of a beam at the first and second reflector surfaces is less than 35 nanometers.*

Applicants traversed the obviousness rejection in an Amendment filed on May 26, 2006 and emphasized the absence of the above features from the cited art. The Examiner, however, declined to withdraw the obviousness rejection. In the Advisory Action dated June 12, 2006, the Examiner asserted that the function of minimizing the surface translation to less than 35 nanometers is “presumed inherent.”

For the reasons set forth below, the rejection of independent claims 1 and 53 under 35 U.S.C. § 103(a) should be withdrawn because the Examiner’s determination of *presumed inherency* is legally and factually flawed.

To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’

MPEP § 2112 (IV), (citing *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)).

“In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” MPEP § 2112 (IV) (citing *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). The Examiner has done neither.

As an initial matter, the Examiner incorrectly refers to the allegedly inherent feature as “minimizing the *surface translation* to less than 35 nanometers.” The claim, however, recites that the “*magnitude of an apparent surface depression of the wafer due to translation of a beam* at the first and second reflector surfaces is less than 35 nanometers.” (emphasis added)

The Examiner has provided no basis in fact or technical reasoning to support a determination that the claimed feature necessarily flows from the teachings of the cited art. The presumed inherency determination therefore is legally unsupported. It is also factually wrong because a surface depression magnitude less than 35 nanometers does not *necessarily* result from the first and second level sensor reflectors disclosed in Schuster (see, for example, Schuster, Figure 1) or Kotchick.

Figures 7a-9b of the present Application illustrate this fact (i.e., that providing *an apparent depression magnitude of less than thirty-five nanometers due to translation of the beam at reflective surfaces of the first and second reflectors* is not inherent). The X-Y(-Z) graphs in Figures 7a-9b show the fact discovered by the inventors that the thickness of a level sensor mirror coating on a first mirror (“first reflector having at least two layers”) and second mirror (“second reflector having at least two layers”) can be tailored to change the apparent surface depression of a wafer (substrate) due to the translation of the beam. The Y-axis represents the coating thickness on a first mirror and the X-axis represents the coating thickness on a second mirror. Figures 7b, 8b, and 9b are 3-D graphs in which the Z-axis represents the value of the apparent surface depression on a wafer that is caused by the first and second mirrors. In many regions, the value of the apparent surface depression is *greater than 35 nm*.

The Advisory Action therefore is wrong. The legal standard for demonstrating inherency has not been met. Not only has the Examiner failed to provide a basis in fact or technical reasoning to support the determination that an apparent wafer surface depression of less than 35 nanometers *necessarily* flows from the level sensor reflectors of Schuster, Appellants have demonstrated as a matter of *fact*, that the recited feature is *not* inherent to (i.e., does not necessarily flow from) the level sensor reflectors.

The combination of Schuster and Kotchick therefore fails to teach or suggest all the features recited in claim 1. An *apparent depression magnitude less than thirty-five nanometers due to translation of the beam at reflective surfaces of the first and second reflectors* is not an inherent aspect of the cited art, and claim 1 therefore is not rendered obvious. The rejection under 35 U.S.C. § 103(a) therefore should be withdrawn. Because the rejection of dependent claims 2-6, and 9-14 was predicated on the rejection of claim 1 under 35 U.S.C. § 103(a), and because claim 1 is patentable over Schuster in view of Kotchick for the above reasons, the rejection of claims 2-6, and 9-14 also should be withdrawn. The same applies to dependent claims 7 and 8.

Claim 53 similarly recites that the first and second reflectors *are selected to obtain a minimum total effective translation of the beam* at the surfaces of the first and second reflectors but does so without imposing the 35-nanometer limitation of claim 1. To the extent the Examiner means to argue that a minimum total effective translation of the beam at the surfaces of the first and second reflectors is inherent in selecting the reflectors, no evidence has been provided as to how this is achieved. The minimization of translation is only

characterized as “presumed inherent.” Because the combination of Schuster and Kotchick do not teach or suggest all the features recited in claim 53, and because an unsupported assertion of (presumed) inherency fails to meet the test recited above for establishing inherency, the rejection of claim 53 under 35 U.S.C. § 103(a) should be withdrawn.

**Claims 44-52**

With respect to method claims 44 and 48 (and the claims that depend therefrom), the Examiner asserted in the Advisory Action that the function of minimizing the surface translation would be obvious in order to improve and to obtain accurate measurement and to overcome the Goos-Haenchen shift (a translation of light when reflected from a surface) which is recognized in the art. The Advisory Action, however, fails to refer to the feature recited in method claim 48, wherein *a magnitude of an apparent depression of the wafer surface due to translation of the beam at reflective surfaces of the first and second reflectors is less than thirty-five nanometers*. For the reasons noted above with respect to claim 1, which recites substantially the same feature, the subject matter of claim 48 is not rendered obvious by the cited art, and the rejection of claim 48 under 35 U.S.C. § 103(a) should be withdrawn.

Nor does Schuster provide a basis for rejecting independent claim 44 on obviousness grounds. Claim 44 recites, among other things, that first and second reflectors (each containing at least two layers) are selected to *obtain a minimum total effective translation of the beam at the surfaces of the first and second reflectors*. The Examiner relies on the combination of Schuster and the assertion that it would be obvious to minimize the surface translation because of the purported *motive* of improving and obtaining accurate measurements and overcoming the Goos-Haenchen shift. Schuster’s disclosure, however, fails to disclose how that might be accomplished. It therefore fails to enable one of ordinary skill in the art to practice the recited method, and fails to provide a reasonable expectation of success. Merely reciting a *motive* to improve and obtain accurate measurement is not enough to establish obviousness. The Examiner must provide evidence that the teachings of Schuster would *enable* one of ordinary skill to *obtain* a minimum total effective translation of the beam at the surfaces of the first and second reflectors. Here, the Examiner failed to do so.

The prior art must be enabling. See *Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d 1461, 1471, 43 U.S.P.Q.2D (BNA) 1481, 1489 (Fed. Cir. 1997) (“In order to render a claimed apparatus or method obvious, the prior art must enable one skilled in the art to make and use the apparatus or method.” (quoting *Beckman Instruments, Inc. v. LKB Produkter AB*, 892 F.2d 1547,

1551, 13 U.S.P.Q.2D (BNA) 1301, 1304 (Fed. Cir. 1989))).

*Rockwell Int'l Corp. v. United States*, 147 F.3d 1358, 1365 (Fed. Cir. 1998).

In *Rockwell*, the lower court had ruled on summary judgment that it was obvious to grow a single crystal film to achieve a claimed invention, but the Federal Circuit vacated that judgment because none of the prior art taught with a reasonable likelihood of success *how* to grow the recited single crystal film. *Id.* at 1365-1367. Here, much like the prior art in *Rockwell*, Schuster lacks a disclosure sufficient to enable one of ordinary skill in the art to practice the recited method and provides no reasonable expectation of success even if there had been a motivation to provide the claimed minimization. Schuster therefore fails to render claim 44 obvious under the standard enunciated in *Beckman Instruments*.

To establish a *prima facie* case of obviousness . . . there must be a reasonable expectation of success. M.P.E.P. § 2142. The Examiner, however, has provided no evidence or argument as to why there would be a reasonable expectation of success for one of ordinary skill in the art to modify the reflectors of Schuster to minimize the effective surface translation of beams reflected off the reflectors. Because Schuster does not enable one of ordinary skill in the art to practice the recited method and because there would be no reasonable expectation of success, Schuster fails to render claim 44 obvious and the rejection of claim 44 under 35 U.S.C. § 103(a) should be withdrawn.

The rejection of dependents claims 45-47 and 49-52 was predicated on the rejection of respective base claims 44 and 48. Because claims 44 and 48 are patentable over the cited art for the above reasons, the rejection of claims 45-47 and 49-52 also should be withdrawn.

For the foregoing reasons, there are clear and legal factual deficiencies in the appealed claim rejections and it is respectfully requested that the panel return a decision concurring with Appellants' position and eliminating the need to file an appeal brief.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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